

ABSTRACT OF THE DISCLOSURE

A method and apparatus for a zone detection system in which assets and personnel to be monitored are assigned a transmitter that emits a transmitter signal that includes a common code and a unique code. Processing requirements associated with restricted zone monitoring are reduced by scanning received signals for the single common code or a relatively small number of common codes. Processing requirements associated with locating an individual transmitter are reduced by scanning for a single transmitter signal. Transmitter signals are relayed by sub-sector RF-relays to a centralized sector signal processing computer. One or more signal processing computers interface with a system controller that supports a centralized user interface configurable to manage one or more sectors. CDMA matched filter techniques, power signature maps, and two-dimensional/three-dimensional convolution techniques are used to efficiently detect signals and to refine the estimated location a specific transmitter or a group of transmitters.